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Measuring progress: the digital divide and review of targets of the World Summit on the Information Society

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Note by the secretariat

Summary

The purpose of this note is to present an overview of regional progress in implementing the outcomes of the World Summit on the Information Society (WSIS). Survey data collected in 2013 from member and associate members and publicly available data suggest that there has been progress in the past decade towards achieving the WSIS objectives. Larger segments of the population have access to information and communications technology (ICT), in particular mobile phones, and more public institutions are connected online than ever before. However, progress is incomplete, and in some instances the digital divide has actually increased as more advanced countries have surged ahead in implementation of WSIS objectives. Mobile broadband may enable some countries to catch up on Internet connectivity. Further improvements in terms of local content and language diversity would help stimulate investments in connection infrastructure and make ICT more affordable.

In this context, ICT will provide ever more opportunities for development, as well as more challenges. Policymakers will need to closely track and analyse the contribution of ICT to future sustainable development goals. Consequently, this note recommends for the consideration of members and associate members the development of a new set of ICT development indicators beyond 2015, updating some WSIS targets and creating new ones when necessary. The future goals should explore inclusive and sustainable connectivity, particularly through broadband, and the factors required for affordable universal access to broadband. In addition, future ICT goals should support the achievement of sustainable development goals, and should reflect lessons drawn from the WSIS implementation experience over the past decade. This includes using existing statistical standards when possible, involving the statistical community in the design of the targets at an early stage and reviewing the targets more frequently than before, to ensure ICT goals remain relevant as technology rapidly evolves.

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I. Introduction

1. Held in two phases in 2003 (Geneva) and 2005 (Tunis), the World Summit on the Information Society (WSIS) was organized under the aegis of the United Nations as an international initiative to address the growing digital divide.[1] The WSIS process was characterized by a truly multi-stakeholder participatory approach, with Governments, civil society, international agencies, academia and the private sector all contributing to decision-making. From the outset, it was agreed that the outcome of the WSIS process would be assessed against 10 targets set by the stakeholders. The Partnership on Measuring Information and Communications Technology for Development, directed by the WSIS stakeholders, developed a framework of 49 statistical indicators to measure progress towards the targets.[2] Whenever possible, the indicators were based on existing international statistical standards for measuring information and communications technology (ICT), developed by each specialized agency of the Partnership. Some of these statistical data are regularly collected and disseminated by Partnership members. Other targets are measured through indicators that were specifically designed for this

[1] See www.itu.int/wsis/index.html.

[2] The list of the WSIS targets and indicators are included in the annex to the present document.

purpose and are not regularly collected and disseminated by international organizations. The targets cover a wide array of policy areas and reflect numerous facets of the digital divide as identified during the Summit.

II. WSIS outcome review – methodological approach

A. Mandates for the WSIS review

2. Ten years after the Geneva phase of WSIS, its objectives are now under final review. The Open Consultation Process on Overall Review of the Implementation of the WSIS Outcomes (WSIS+10) has engaged the international community in examining successes and shortcomings and devising a future international framework for action on ICT and the digital divide. The review is evolving parallel to and in support of discussions on the global development agenda beyond 2015, and includes the following:

(a) The Partnership on Measuring Information and Communications Technology for Development produced an analysis of the outcome of the WSIS process based on statistical evidence. This effort, coordinated by the International Telecommunication Union (ITU) and to which ESCAP contributed, resulted in the report entitled *Final WSIS Target Review – Achievements, Challenges and the Way Forward*. The report was presented at the WSIS forum in Geneva in June 2014;

(b) The Economic and Social Council of the United Nations mandated the Commission on Science and Technology for Development (CSTD)[3] to serve as the focal point in the system-wide follow-up to the WSIS outcomes. Specifically, the Council requested CSTD, after its eighteenth session in 2015, to submit the results of its 10-year review of progress made in the implementation of the WSIS outcomes to the General Assembly in preparation for the overall review of the implementation of the WSIS outcomes in 2015;

(c) At the regional level, Commission resolution 69/10 requested the secretariat of ESCAP to "[…] pursue the facilitation and coordination of the regional review of progress in implementation of the targets set out in the outcome documents of the World Summit on the Information Society". The secretariat therefor carried out a regional statistical review of progress towards WSIS target indicators.[4]

3. Political consultations were also carried out in the WSIS+10 review, which resulted in the adoption in June 2014 of the *WSIS+10 Statement on the Implementation of WSIS Outcomes*, which takes stock of the implementation of the WSIS Action Lines and new challenges that have emerged, and the *WSIS+10 Vision for WSIS Beyond 2015*, outlining priority areas to be addressed in the implementation of WSIS beyond 2015.[5]

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[3] CSTD is a subsidiary body of the Economic and Social Council. It provides the Council and the General Assembly with high-level advice on relevant science and technology issues.

[4] www.unescap.org/sites/default/files/ESCAP%20WSIS%20target%20review%20rev%2026%20May_0.pdf.

[5] The documents are available from www.itu.int/wsis/implementation/2014/forum/inc/doc/ outcome/362828V2E.pdf.

B. Statistical data collection exercise

4. The Task Group on Measuring the WSIS Targets, established by the Partnership, devised a questionnaire to collect information on the 49 indicators, and requested the United Nations regional commissions to use the questionnaire to gather data from countries of their respective regions. The survey was carried out in 2013 by the regional commissions, including ESCAP, and data collected by ESCAP were communicated to the Partnership in November 2013. Where available, the survey was complemented with publicly available information on the WSIS target indicators. ESCAP received responses from the following developing countries in the Asia-Pacific region: Azerbaijan, Bangladesh, Bhutan, Cambodia, Fiji, Georgia, Iran (Islamic Republic of), Kazakhstan, Lao People's Democratic Republic, Maldives, Nauru, Nepal, Philippines, Singapore, Thailand and Viet Nam. This represented a response rate of 37 per cent, which is the highest response rate of developing countries by region, according to ITU, which coordinated the process at the global level. The responses received varied significantly in terms of thoroughness, with some respondents having clearly dedicated significant efforts to provide precise answers and additional relevant details.

III. Review of WSIS targets in Asia and the Pacific

5. The data collection exercise conducted by ESCAP resulted in the paper entitled "Assessing the outcome of the World Summit on the Information Society in Asia and the Pacific: regional survey and review by the ESCAP secretariat". This section provides a brief summary of the findings along with an examination of progress towards each target based on available data.

Target 1

6. Target 1 evaluates the rural dimension of the digital divide. Mobile telephony service is increasingly available and used even in rural areas in most ESCAP countries. Only a handful of countries retain low coverage rates in rural areas. The rural divide in access to and use of the Internet is much more pronounced in poorer countries, and is therefore worsened by low income. In more developed counties of the region, Internet usage ratios are very high for rural and urban areas (respectively 76.2 and 85.1 per cent in Japan in 2012, for example). In middle-income countries, rural Internet usage rates tend to fluctuate around half of the levels of urban areas (respectively 49.7 and 87.6 per cent in Azerbaijan). In poorer countries the differential in Internet usage between rural and urban areas tends to be much higher (respectively 3.8 and 16.1 per cent in Indonesia in 2010). The review, however, identified a trend of rapid progress in Internet use in rural areas, which is in good part owed to mobile broadband. The uptake of mobile broadband began earlier in more developed countries where it has progressed even more quickly. However, a few middle-income countries and members of the Commonwealth of Independent States have also done well in adopting mobile broadband technologies. Mobile broadband could open new avenues for intermediated ICT access in rural areas, as exemplified by the Infolady initiative in rural Bangladesh (box 1).

Box 1

Infolady: a women-centred programme to deliver information services in rural Bangladesh

The Infolady programme offers information, communication and ancillary services to disadvantaged rural dwellers, mostly women. The services are provided by specially trained women – the Infoladies – who travel between villages on bicycles and are equipped with laptops, webcams, mobile phones and Internet connectivity. Beneficiaries are met in groups and subsequently at their doorsteps, and offered affordable services that would otherwise not be readily available due to the lack of adequate rural transport infrastructure and socially conservative rural environments that make it difficult for women to travel and interact outside their villages.

The services Infoladies provide include:

- Communication services;
- Basic health services and reproductive health information and services;
- Advice on farming issues, and legal advice and assistance in interactions with administrations;
- Buying and selling from the villagers to enhance their access to markets.

An Infolady typically listens to the villagers' livelihood problems and assists them with Internet services or preloaded offline audiovisual livelihood content in Bangla, the local language.

The programme provides the Infoladies with specific training, and a loan to purchase a bicycle and ICT equipment. The Infoladies are able to generate a significant and steady income for themselves through the services they sell and the products they trade with beneficiary communities.

The model was launched in April 2010 by D.Net and is being scaled up nationwide in Bangladesh. The model has had positive impact on the well-being of the rural population by addressing issues such as family planning, hygiene, health care during pregnancy, agriculture, education, entertainment and women's empowerment in rural communities. Finally, the endeavour has enhanced the status of educated rural women and enabled rural women to challenge the status quo by establishing the right to ride bicycles in 400 communities.

Source: Adapted from http://infolady.com.bd and "Assessing the outcome of the World Summit on the Information Society in Asia and the Pacific: regional survey and review by the ESCAP secretariat".

Target 2

7. Target 2 measures progress in connecting schools. Data for a sample of ESCAP countries of various income levels reveal great disparities in the ratio of learners to computers, especially in least developed and lower income countries. Reported ratios of learners per available computer are very high in Cambodia (>500), Bhutan (79), India (89), Indonesia (136), Nepal (>500) and Sri Lanka (98), limiting effective individual use. On the other extreme, Australia, Japan, the Republic of Korea and Singapore all reported at least one computer for every seven pupils. Similar disparities are observed for Internet access in schools. Poorer countries tend to have fewer schools connected to the Internet, particularly to broadband, which would offer more

education services. Rates of primary and secondary schools with Internet access of any type stand at 5 per cent in Bangladesh and Nepal, 6 per cent in Kyrgyzstan and 17 per cent in Sri Lanka.

Target 3

8. The objective of this target is to connect all scientific and research centres through ICTs. Connectivity has become essential for scientific research and innovation. The limited data available for ESCAP countries show that public scientific and research centres are nearly all connected to broadband Internet. Connectivity of national research and education networks (NRENs) is also growing in the region, thanks in particular to regional and international initiatives, such as the Trans-Eurasia Information Network (TEIN) and the Central Asian Research and Education Network (CAREN). Through TEIN, research centres of 20 Asia-Pacific countries are linked with research centres across Europe. It allows for high-speed and high-volume exchange of data, and facilitates a wide range of applications to enhance research and education, including e-learning, videoconferences and online research collaboration.

Target 4

9. Target 4 sets the objective to connect all public libraries, archives, museums, cultural centres and post offices in line with the vision to preserve and promote cultural diversity and local knowledge through ICT. Moreover, connected public service institutions, such as libraries and post offices, can provide public Internet access points. Apart from data related to ICT in post offices,[6] very limited data are available for this target. The data collected by the secretariat show varying degrees of connectivity across the region, usually correlated to income level. Post offices are very often connected in developed or upper-middle-income countries while rates of connectivity are very low in poorer countries. The limited data available also reveal that rates of connectivity and digitalization of national archives are usually very low in poorer countries. External assistance would probably be required to accelerate digitization of national archives which constitute major written repositories of cultural heritage.

Target 5

10. Target 5 sets the objective of connecting health centres and hospitals to improve the performance of health services. Relatively scant data are available for this target, but the data reveal a high level of Internet connections in public hospitals and public health centres, including in the least develop countries (LDCs) of the region. Bhutan, Georgia, Iran (Islamic Republic of), Maldives, Nauru and Thailand reported hospital Internet connection rates of 100 per cent. The little data available also show high levels of computer and Internet use to manage individual patient information.

Target 6

11. The Summit also developed a target on using ICT in Governments (target 6). The evidence collected by the ESCAP secretariat, as well as other indicators published regularly in the *E-Government Survey* of the United

[6] Post office data are collected and publically disseminated by the Universal Postal Union.

Nations Department of Economic and Social Affairs[7] show that Governments in Asia and the Pacific are increasingly making use of ICT to deliver services. Use of computers and the Internet by the staff of central Governments is becoming quasi-ubiquitous, including in LDCs. Likewise, most central government organizations are now equipped with a local area network (LAN) and intranet, and it is becoming the norm for government organizations to have a web presence. Nevertheless, the digital divide is still vividly illustrated by gaps in the availability and extent of online services provided by national Governments. According to the 2012 *E-Government Survey*, the Republic of Korea and Singapore obtained the best possible score, alongside the United States of America. In the region, good performers in terms of online services also include (in order of online service index score) Malaysia, Kazakhstan, the Russian Federation, Georgia, Mongolia, India, China and Thailand, which all fared significantly better than the regional average. By contrast, Myanmar, Nauru, Kiribati and Tuvalu exhibited the lowest levels of online services in the region and all Pacific island developing countries scored below the regional average.

Target 7

12. Target 7 concerns adapting education and school curricula to ICT. Although limited in its coverage of the region, the data available reveal an important divide regarding the preparedness of teachers to use ICT, with poorer countries usually having very few ICT teachers and low proportions of teachers trained to use ICTs to teach other subjects. For example, all teachers (100 per cent) in Singapore and Hong Kong, China were trained to teach using ICT, while only 2 per cent of teachers in Myanmar were. The data show a smaller, but distinct divide in terms of the availability of computer- and Internet-assisted instruction in schools of the region.

Target 8

13. As radio and television play an important role, especially in providing information to illiterate people, the Summit also set as a target to ensure that the entire population has access to those technologies (target 8). Data show that, compared to a decade ago, Asia-Pacific household access to radio has decreased, while access to television has increased. Possession of a television is still largely correlated to income. Poorer countries still exhibit possession rates below 50 per cent, while rates in high- and middle-income countries are closer to 100 per cent. Progress has been made in household television possession rates with notable increases in Azerbaijan (31.4 per cent), Maldives (25.5 per cent), Bhutan and Viet Nam (+20 per cent).[8] The convergence of ICTs and the development of mobile television and mobile radio enabled by mobile broadband, mean that high-speed broadband access will eventually translate into de facto access to television and radio services. Basic ICT skills will be required to ensure that everyone is able to access television and radio services through mobile devices.

Target 9

14. Facilitating the development of content and the presence of all world languages on the Internet is the goal of target 9. Data available from a variety

[7] *United Nations E-Government Survey 2012: E-Government for the People* (United Nations publication, Sales No. E.12.II.H.2). Available from http://unpan1.un.org/intradoc/groups/ public/documents/un/unpan048065.pdf.

[8] For the period 2003-2010 for Azerbaijan and Maldives, 2003-2008 for Bhutan and 2004-2011 for Viet Nam.

of sources for this target show that, although the vast majority of available content on the Internet is in English, the relative share of other major ESCAP languages, particularly of Chinese, Korean and Russian, is growing. Rankings of the most prevalent languages online include Japanese (4), Russian (8) and Korean (9). The diversification of the languages represented online is confirmed by other sources reviewed by ESCAP, including the number and share of Wikipedia articles in various languages. The data generally indicate that the cultural digital divide tends to follow the patterns of the digital divide dictated by income disparities.

15. The Internet offers considerable potential in terms of promoting culture and preserving traditional knowledge. At the same time, it can also be a vector of cultural assimilation by promoting content solely in dominant languages. Growth in the number of Chinese and Russian Internet users has been particularly brisk over the past decade, and both languages have increased their number of users by over 1,000 per cent. In 2011, about a quarter of Internet users were Chinese speakers. Measuring the evolution of languages and content online is clearly an area that requires further support to reveal the true impact of the Internet on cultural diversity and take appropriate policy responses.

Target 10

16. Ensuring that more than half the world's inhabitants have personal use of ICTs constitutes target 10. For many ESCAP countries, access to mobile telephony is widespread and, with a few exceptions, this aspect of target 10 has already been met in the region. Approximately one third of ESCAP countries have reached the objective of at least half of the population using the Internet and a few more countries are expected to reach the target by 2015. Despite progress, this component of the target still shows a strong digital divide. Most of the countries that have reached the 50 per cent target of Internet use are either developed or relatively high income. Such successes in increased Internet penetration are usually related to a rapid uptake in mobile broadband. Meanwhile, in 2012 in Afghanistan, Bangladesh, Cambodia, the Democratic People's Republic of Korea, Papua New Guinea, Myanmar, Solomon Islands, Timor-Leste and Turkmenistan, 10 per cent or less of the population used the Internet. Significant gains in access to the Internet, particularly broadband, are needed in poorer countries.

Overall review conclusions

17. Significant progress has been made towards the WSIS objectives in Asia and the Pacific. Progress has been led by mobile telephony, which is now available to most people in the region, with a few exceptions usually dictated by local circumstances. Progress has also been made, though more unequally, in terms of Internet penetration rates. Public institutions and services are increasingly connected to the web, even in poorer countries of the region. Internet connectivity in more advanced countries has expanded faster than in low-income countries, and there also appears to be a gap in terms of quality and speed of connections. Moreover, there are gaps in the quality and availability of data on WSIS targets and indicators, and in some cases the data are too weak to judge progress. Nevertheless, the review identified an improvement in cultural diversity and the availability of locally relevant content. Overall, the findings seem to illustrate that the digital divide is now often correlated to income levels in the region.

18. The result of the global review, undertaken subsequently by the Partnership on Measuring Information and Communications Technology for Development, largely echoed the findings of the review of Asia and the Pacific undertaken by the secretariat, which is not surprising as ESCAP includes countries of all development levels, from the most advanced to the most challenged in terms of ICT.

IV. Measuring international ICT goals for development – methodological issues and lessons learned

19. Beyond the outcome for each of the WSIS targets, the review undertaken by ESCAP also revealed important lessons regarding the methodological approach to setting ICT development targets. This section discusses lessons learned in terms of setting measurable ICT objectives.

A. Responding to diverse capacities to measure ICT

20. At the time of the Summit, there may have been an expectation that progress in statistical capacity to measure ICT would closely follow this fast-changing sector, yet this has not been the case. While there has indeed been some progress in the production of good-quality statistics, thanks to the notable support of the Partnership on Measuring Information and Communications Technology for Development, the availability of ICT statistics across development levels has nevertheless become another reflection of the digital divide. More advanced countries, which have greater financial and human resources, are able to carry out surveys more regularly and frequently, and data are usually of higher quality. Although the response rate of Asia-Pacific LDCs was relatively high (41 per cent), the quality of responses was uneven. The already overstretched statistical systems of LDCs may not be able to meet reporting requirements, and there is a risk that global and regional statistical ICT progress reviews will be biased towards more advanced countries with the capacity to produce higher-quality data, and may thereby underestimate the extent of the digital divide. Capacities of countries with weaker statistical systems need to be taken into consideration when international ICT development objectives are set up. Resources also need to be planned for, to fill the capacity gaps and proceed with good-quality statistical evaluation in LDCs and countries with lower statistical capacity. Over the past decade, the Partnership has gained recognition for its record of ICT statistics capacity-building.

B. Importance of basing objectives on existing or easily measurable indicators

21. Beyond the gap in data availability and quality between richer and poorer countries, a further clear distinction can be made between indicators that are regularly monitored by the international community (such as the Core ICT Indicators), and those indicators that are not monitored by the international community and were designed to measure specific aspects of WSIS targets. For the former group, data are more often available, especially for indicators that have a long track record of collection by international organizations. By contrast, information is rarely available for indicators that were designed to measure specific aspects of WSIS targets. To avoid data gaps and irregularities, existing or easily measurable indicators should form the basis of objectives and data collection should be supported by the international community.

C. Exploiting statistical expertise when defining objectives

22. When it devised the indicators to measure the WSIS targets, the Partnership made important efforts to ensure that they would be statistically measurable. However, the targets had been defined with little consideration of their statistical measurability, and it was indeed challenging to formulate appropriate indicators ex post facto. Therefore, one potential lesson for setting international ICT objectives in the future is to consider their statistical measurability right from the conception stage. At an early stage of defining new international targets on building an inclusive information society beyond 2015, the technical expertise on measurability and the support of the statistical community should also be enlisted. The Partnership could offer some support in this respect, and ESCAP countries should ensure that their diverse capacities to measure ICTs are well reflected in this effort.

D. More frequent reviews needed

23. The ICT landscape has gone through profound transformations since 2003 and 2005, when the two phases of the Summit were held. Technology itself has evolved massively, opening new opportunities and challenges with ever more potential development impact. Moreover, huge gains in the penetration rates of mobile phones and the Internet to a lesser extent mean that some of the targets were actually attained some time before the agreed deadline of 2015. Moreover, greater connectivity in major urban areas has enabled important public institutions, such as hospitals, government offices or research centres, to gain Internet access, though not always broadband Internet. There is, therefore, the possibility that some of the indicators will become obsolete as technology evolves and as countries build fully connected information societies. While it is important to report good news in order to maintain the mobilization of policymakers and development partners, eliminating obsolete development indicators helps reduce the burden on already stretched statistical systems.

24. One of the lessons from the regional and global reviews is that the relevance of targets and indicators should be examined more frequently, not only to remove outdated goals, but also, as discussed in the next section, to introduce new ones where necessary.

V. The role of ICT in support of sustainable development goals beyond 2015

25. This section explores areas of ICT policy relevant to ESCAP countries and which could constitute components of future development goals. The WSIS experience demonstrates the importance of setting easily measurable targets in order to avoid very low response rates. It also suggests the use of existing metrics, when possible. The objectives of ICT for development could be grouped under the following categories: (a) ICT access, with an increased focus on the quality and affordability of connectivity; (b) ICT social inclusiveness; (c) ICT for shared prosperity; and (d) ICT and environmental sustainability.

A. ICT connectivity

26. Access to the Internet, though constantly expanding, has failed to replicate the success of mobile telephony. Progress has been uneven and in many respects, the gap between the most and the least connected ESCAP countries has increased, with richer countries making rapid gains in terms of

penetration and availability of ultra-high-speed broadband. The Internet, particularly broadband Internet, has opened many possibilities that did not exist a decade ago. Favourable conditions of access, in terms of both affordability and quality, can enable a range of development applications related to health, education, business development and so on.

27. It is important, therefore, for countries to continue tracking access to the Internet within the development framework beyond 2015. Access to the Internet should be measured through, inter alia:

(a) Current WSIS indicators in terms of access to and use of the internet, with a new focus on broadband;

(b) Population covered by 3G (third generation) and 4G (fourth generation) long-term evolution (LTE) services;

(c) Affordability of Internet services, possibly as a share of gross national income (GNI),[9] and affordability of Internet-enabled devices;

(d) Quality of connections, with potential metrics such as actual download speed and bandwidth latency.

28. Mobile broadband and next generation telephony services (4G LTE) may enable widespread gains in access to the Internet, but open, flexible and competitive markets supported by appropriate regulatory and legal frameworks will be key drivers. It is therefore recommended to foster regulatory frameworks that are conducive to investment and competition in ICT. Useful metrics related to regulatory and legal framework could be easily identified, in consultation with the private sector and statistical experts.

29. Also crucial for Internet uptake is the safety of online data and online transactions. With the increasing importance of e-commerce and e-business, and as citizens, institutions, businesses and administrations are encouraged to use the potential of "cloud computing", challenges may arise related to data privacy, the location of data storage and data protection.

30. Furthermore, mobile broadband and next generation telephony rely on high-capacity fixed infrastructure, notably fibre-optic cable networks, for traffic aggregation and access to international Internet transit hubs. In-depth measurement of infrastructure availability, capacities and remaining gaps will be required. The convergence of mobile telephony and the Internet, increased ICT availability, new ICT uses, such as "big data" or the "Internet of things", and cloud computing will radically increase demand for bandwidth and high-capacity infrastructure. Measurement should facilitate infrastructure deployment that is regionally cohesive and that serves as a conduit through its landmass to Europe. In this regard, the Partnership has agreed to seven new indicators on infrastructure. The ESCAP/ITU maps of the information superhighway can also constitute an important tool in tracking progress on building a cohesive and integrated transmission infrastructure.[10] Other potential indicators to assess the extent to which ICT infrastructure creates the right conditions for ICT for development include the availability of Internet exchange points, and the price of Internet protocol (IP) transit.

[9] ITU already produces data regularly on broadband price as a percentage of GNI.

[10] The maps are available from www.itu.int/itu-d/tnd-map-public/.

B. ICT and social inclusiveness

31. As it can provide information and opportunities beyond what the traditional social structures permit, ICT holds much promise for social inclusiveness.

1. Urban/rural divide

32. Reducing the digital divide between urban and rural areas is the first target of WSIS. In Asia and the Pacific, the urban/rural dimension of the digital divide is more pronounced in poorer countries, yet it is precisely there that ICT can have the most beneficial and transformative impact. Moving beyond 2015, it will remain essential to continue tracking the urban/rural character of the digital divide in order to gradually close it. This will be particularly relevant for broadband Internet access and use, coverage by 3G and 4G signals and for the availability of relevant content in local languages.

2. Gender

33. Although the gender dimension of ICT was included in the Geneva Plan of Action, it has yet to be systematically measured. Anecdotal evidence suggests that ICT can alleviate specific forms of gender discrimination and provide women and girls with opportunities from which they would otherwise be excluded. The Partnership is currently developing internationally comparable indicators on the gender dimensions of ICT, and these could be helpful in tracking progress and establishing international comparisons. These indicators cover ICT and gender in the following areas:[11]

(a) ICT use by households and individuals;

(b) ICT and education;

(c) Employment;

(d) Businesses, small and medium-sized enterprises and entrepreneurship;

(e) E-government.

34. Gender and ICT indicators will facilitate the development of international targets on ICT for development.

3. Vulnerable groups

35. The next phase of WSIS should also review access to and use of ICT by vulnerable populations with special needs, such as people with disabilities, ethnic and linguistic minorities and illiterate populations. The important impact that ICT can have for such populations in improving their livelihood has been well documented. To be effective, however, it is important that people with little or no formal education can easily use the interface and navigate the content provided. In that respect, intermediated ICT services may be useful in developing countries or areas where illiteracy is prevalent. This can take different forms, such as community access centres that are

[11] Measuring *ICT and Gender: An Assessment*. United Nations Conference on Trade and Development, 2014. Available from http://unctad.org/en/PublicationsLibrary/webdtlstict2014d1_en.pdf.

operated by a facilitator,[12] or mobile help services for people with low literacy.

4. Local content and cultural and linguistic diversity online

36. Although WSIS target 9 makes a valuable contribution towards understanding and quantifying the linguistic and content component of the digital divide, this dimension remains understudied and neglected. This is a major problem as meaningful content is essential if the Internet and ICT are to truly enhance the lives of all and contribute to inclusive development. ICTs, including the Internet and mobile telephony, need to be usable and understandable by all, including speakers of minority languages. Beyond 2015, countries of Asia and the Pacific should consider tracking the development of local content and the diversity of languages online, for which the indicators of target 9 will need to be updated.

37. The increase in relevant local content is likely to boost demand for access to the Internet in Asia and the Pacific. This in turn should attract further investments in infrastructure and services that are affordable to all. In that way, the expansion of local and linguistically diverse content can enable improved affordability and availability of the Internet.

5. E-government

38. Related to the importance of providing content to all segments of the population is the provision of online government services and information. The international community is relatively well equipped with tools to measure e-government, although with the rapid evolution of technology and its increasing availability, some of the existing indicators should be updated. This rapid evolution shifts the question from whether e-government services are available to their accessibility and relevance to all population groups. Although government services are increasingly available online, important gaps remain across Asia and the Pacific.

39. It will therefore be necessary to update and expand the tracking of e-government services beyond 2015. For some Asia-Pacific countries, early warning systems and ICT-enabled disaster prevention and management services are striking illustrations of the power of ICT for public service. In addition, ICT can contribute to building valuable data sets for a large range of socioeconomic applications. Big data may open new avenues for collecting information in a more systematic and economical way. ICT can also accelerate the development of thorough and reliable civil registration and vital statistics systems, helping to register life events such as birth, marriage and cause of death. Such information is essential for well-designed and targeted social and health policies.

6. Usage and education

40. The way people use ICT, particularly broadband Internet, ultimately determines the outcome of technology on well-being. There is anecdotal evidence in developed countries that less-educated people spend comparatively more time using ICT in ways that do not enhance welfare.[13] It is therefore important to track the ways various populations across countries are using ICT to better understand actual patterns of use, and when necessary,

[12] Such as the Infolady programme described in box 1.

[13] Available from www.nytimes.com/2012/05/30/us/new-digital-divide-seen-in-wasting-time-online.html?pagewanted=all&_r=0, accessed 28 May 2014.

offer incentives for appropriate use. A potential illustration is the growing use of social media and their impact on the way people socialize and interact. The welfare of children and teenagers online, including the prevention of bullying, abuse or other criminal activities, suggests the need for in-depth socioeconomic study and tracking at the international level of usage trends and impacts.

41. Moreover, ICT offers a major potential to enhance the pedagogic experience and outcomes for millions of learners across the world. Developing ICT skills through education is essential not only to encourage better use of ICT, but also to boost competitiveness and productivity at the individual and national levels. Therefore, it is important to continue reviewing WSIS indicators related to ICT and education in the future.

C. Measuring ICT for shared prosperity

42. ICT can accelerate economic progress and poverty reduction, and the ICT era has yielded resounding success in terms of developing thriving information economies, including in some ESCAP countries. These benefits, however, are not uniformly distributed across the region. Better measurements of the information economy beyond 2015 could lead to a better understanding of best practices and the economic impact of ICT, and could be used to ensure that ICT contributes to shared prosperity.

43. The production of ICT goods and services now accounts for a sizeable share of investments, employment and GDP in developing countries. Core ICT Indicators have already been developed to measure aspects of the information economy.[14] Such indicators could be further tracked to assess the contribution of ICT to growth and development.

44. Information technology (IT) and ICT-enabled services have become major export sectors and sources of revenue for a number of ESCAP economies. Countries such as India, the Philippines and Singapore have developed internationally competitive IT and ICT-enabled industries. NASSCOM, the Indian IT Business Process Management (BPM) Industry Association, estimated that in 2014, India will export $52 billion of IT services and IT-BPM revenue will reach $118 billion. Furthermore, IT-BPM is the largest private sector employer in India, employing an estimated 3.1 million people and accounting for 8.1 per cent of GDP.[15] The United Nations Conference on Trade and Development (UNCTAD) is currently developing a set of statistical indicators to measure trade in IT and ICT-enabled services. This should provide the international community with ways to track the extent to which IT and ICT-enabled services contribute to development.

45. Beyond the 2015 WSIS review, the international community and particularly ESCAP countries should seek to monitor the extent to which ICTs are contributing to economic growth and shared prosperity. A number of statistical tools are already available or under development to facilitate this task.

[14] The Core ICT Indicators cover many areas, including the share of the ICT sector in total employment and in total value added, as well as indicators on trade in ICT goods.

[15] See www.nasscom.in/indian-itbpo-industry, accessed 19 May 2014.

D. Measuring the environmental sustainability of ICT

46. Innovation in ICT has created both opportunities for and threats to sustainable development. For example, Internet traffic, ICT appliances and data centres now represent a major share of energy needs of developed countries. The Digital Power Group estimated that the use of ICT around the world consumed about 10 per cent of electricity generated globally in 2013, "equal to all the electric generation of Japan and Germany combined – as much electricity as was used for global illumination in 1985".[16] Although there has been significant progress in reducing the energy intensity of the ICT sector, the speed of the sector's growth means that impact of its consumption of energy should not be underestimated. ICT also consumes a wide variety of rare minerals and natural resources. E-waste, and in particular its unauthorized export to developing countries, is a growing concern as processing such waste may cause environmental and health damage if not carried out properly. The Partnership on Measuring Information and Communications Technology for Development is currently developing a set of indicators to measure e-waste and illegal trade in e-waste. The carbon footprint and production of e-waste in the ICT sector ought to be regularly tracked at the international level in the future, so that corrective measures can be taken to improve the sustainability of the sector.

47. At the same time, ICT enables the development of so-called smarter energy and transport systems and can be a boon to environmental sustainability. Intelligent transport systems, for example, can improve traffic fluidity while reducing the carbon footprint of transport and the impact of air pollution on health, a major issue in Asia and the Pacific. ICT-enabled intelligent transport systems also reduce commuting and freight transportation times. The international community should regularly review progress made in exploiting the potential of ICT to enhance sustainability.

VI. The role of ESCAP and recommendations for consideration by the Committee

48. The Committee may wish to consider the following matters:

(a) As ICT plays an increasingly critical role in development, an open consultation framework will be crucial and will need to lay out a new set of ICT goals for development beyond the WSIS process;

(b) The new goals should be guided by the lessons learned from the methodological approaches used during the WSIS process. The statistical community should be brought in at an early stage to enhance the measurability of goals. When available, existing standards should be used and when necessary, current WSIS target indicators should be updated;

(c) ICT development objectives will need to be reviewed on a more frequent basis so that they remain relevant to rapidly changing ICTs;

(d) Broadband access and the quality of connectivity should feature as issues of importance in the next set of targets. International goals could focus on underlying factors that create the right conditions for strong connectivity;

[16] *The Cloud begins with Coal, Big Data, Big Networks, Big Infrastructure and Big Power: An overview of the electricity used by the global digital ecosystem*. Mark P. Mills, August 2013. Available from www.tech-pundit.com/wp-content/uploads/2013/07/Cloud_Begins_With_ Coal.pdf?c761ac.

(e) Future goals in ICT could be elaborated around the social, economic and environmental pillars of the sustainable development framework. This would facilitate the analysis of the contribution of ICT to future sustainable development goals;

(f) To support the efforts of the member States, the secretariat could track the availability of data on Core ICT Indicators in the region and maintain an online database to identify data gaps;

(g) The secretariat could track those indicators that are most relevant to development in the region, such as broadband affordability;

(h) The secretariat will seek to provide technical assistance to countries with low capacity to produce ICT data, with the cooperation of the Partnership on Measuring Information and Communications Technology for Development and the international donor community;

(i) Based on factors, including the regional WSIS review the secretariat has undertaken, the secretariat will continue to contribute to ongoing global efforts to assess the WSIS outcome and to devise a framework for ICT for development beyond 2015. This will include providing regional perspectives to the global report under preparation by UNCTAD for CSTD, and the United Nations Economic and Social Council. The secretariat will also continue to contribute to the WSIS forum, led by ITU.

VII. Conclusions

49. ICT provides ever more opportunities for and challenges to sustainable development. To enhance evidence-based policymaking, the collection of data and the tracking of ICT indicators must be scaled up and strengthened. It is recommended that a new set of ICT development indicators be developed, updating some of the WSIS targets and creating new ones when necessary, in line with the evolving sustainable development goals and the recommendations highlighted in the document *WSIS+10 Vision for WSIS Beyond 2015* adopted in June 2014. The future targets should emphasize connectivity, particularly broadband, and the factors required for it to become ubiquitous and affordable. In addition, new ICT goals should enable a better understanding of the contribution of ICT to achieving sustainable development goals. The methodology going forward should reflect lessons drawn from the WSIS implementation experience over the past decade.

Annex

List of World Summit on the Information Society targets and indicators

Target 1
Connect all villages with ICTs and establish community access points

1.1. Proportion of rural population covered by a mobile cellular telephone network, by type of mobile cellular telephone technology

1.2. Proportion of households with telephone, by type of network, by urban/rural

1.3. Proportion of households with Internet access, by type of access, by urban/rural

1.4. Proportion of individuals using the Internet, by location, by urban/rural

Target 2
Connect all secondary schools and primary schools with ICTs

2.1. Proportion of schools with a radio used for educational purposes

2.2. Proportion of schools with a television used for educational purposes

2.3. Learners-to-computer ratio

2.4. Proportion of schools with Internet access, by type of access (broadband, narrowband)

Target 3
Connect all scientific and research centres with ICTs

3.1. Proportion of public scientific and research centres with broadband Internet access

3.2. Presence of a national research and education network (NREN), by bandwidth (Mbit/s)

3.3. Proportion of public scientific and research centres with Internet access to a NREN

Target 4
Connect all public libraries, museums, post offices and national archives with ICTs

4.1. Proportion of public libraries with broadband Internet access

4.2. Proportion of public libraries providing public Internet access

4.3. Proportion of public libraries with a web presence

Target 5
Connect all health centres and hospitals with ICTs

5.1. Proportion of public hospitals with Internet access, by type of access

5.2. Proportion of public health centres with Internet access, by type of access

5.3. Level of use of computers and the Internet to manage individual patient information

Target 6
Connect all central government departments and establish websites

6.1. Proportion of persons employed in central government organizations routinely using computers

6.2. Proportion of persons employed in central government organizations routinely using the Internet

6.3. Proportion of central government organizations with a local area network (LAN)

6.4. Proportion of central government organizations with an intranet

6.5. Proportion of central government organizations with Internet access, by type of access

6.6. Proportion of central government organizations with a web presence

6.7. Level of development of online service delivery by national governments

Target 7
Adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances

7.1. Proportion of ICT-qualified teachers in schools

7.2. Proportion of teachers trained to teach subjects using ICT

7.3. Proportion of schools with computer-assisted instruction

7.4. Proportion of schools with Internet-assisted instruction

Target 8
Ensure that all of the world's population has access to television and radio services

8.1. Proportion of households with a radio

8.2. Proportion of households with a television

8.3. Proportion of households with multichannel television service, by type of service

Target 9
Encourage the development of content and put in place technical conditions in order to facilitate the presence and use of all world languages on the Internet

9.1. The proportion of Internet users by language, country level

9.2. The proportion of Internet users by language, top ten languages, global level

9.3. The proportion of webpages, by language

9.4. The number of domain name registrations for each country code top level domain (ccTLD), weighted by population

9.5. The number and share of Wikipedia articles by language

Target 10
Ensure that more than half the world's inhabitants have access to ICTs within their reach and make use of them

10.1. Mobile-cellular telephone subscriptions per 100 inhabitants

10.2. Proportion of households with telephone, by type of network

10.3. Proportion of individuals using a mobile cellular telephone

10.4. Proportion of individuals using the Internet

10.5. Proportion of households with Internet access, by type of access

Proposed Target 11
Connect all businesses with ICTs

11.1. Proportion of businesses using computers

11.2. Proportion of businesses using the Internet, by type of access (narrowband and broadband)

11.3. Proportion of businesses using mobile cellular telephones